

Appl. No. 10/539,712
Amendment dated February 18, 2010
Response to Office Action mailed August 19, 2009

REMARKS

This application has been carefully reviewed in light of the Office Action mailed August 19, 2009. Claims 2, 3, 5-9, 11 and 12 were previously amended pursuant to the Preliminary Amendment filed June 17, 2005. By way of this amendment, claims 1 and 10 have been amended to distinguish over the cited art, and claim 2 has been consequentially amended. No new claims have been added, and no claims have been cancelled. Accordingly, claims 1-12 remain pending in the application. Further review and reconsideration is requested in light of the foregoing amendments and following remarks.

Claim Rejections - 35 U.S.C. §112

Pursuant to page 2 of the Office Action, claim 2 stands rejected under 35 U.S.C. 112 because the word “vinyiidene” is misspelled. Applicant has corrected this typographical error and the word now correctly reads “vinylidene.”

Claim Rejections - 35 U.S.C. §102/§103

Pursuant to pages 4-6 of the Office Action, claims 1-2 and 9-12 stand rejected under 35 U.S.C. 102(b) as anticipated by, or in the alternative, under 35 U.S.C. 103(a) as obvious over JP4356543 as abstracted by Applicant’s filed English language abstract optionally in view of JP3167237 as abstracted by Applicant’s filed English language abstract.

Specifically, the Office Action states that the English language abstract of JP4356543 teaches conductive and dielectric foaming particles, preferably polystyrene foamed particles, which are coated with a graphite powder with the aid of a polymer emulsion adhesive, preferably a styrene-acrylic resin emulsion. The said particles are subsequently used for conductive cushioning materials. It is noted that the process of forming the cushioning materials would employ a heating step to allow the particles to further expand and fuse together, as the graphite coating would not normally expand at the lower temperature that caused the polystyrene particles to further expand, thus meeting the limitations of claim 12. The Office Action further states that

it is not clear if the graphite powder of JP4356543 is expandable/exfoliable graphite powder, thus JP4356543 is taken in view of JP3167237. JP3167237 teaches the production of fire retardant polystyrene resin foamed products by mixing partially foamed beads with heat-expandable graphite coated with a film-forming resin, with further heating to foam further and make the final material. Thus, it would have been obvious to one skilled in the art to use the disclosure of JP3167237 to use heat-expandable graphite in the process of making JP4356543's resin foaming particles.

Applicant submits that base claims 1 and 10 have been amended to require that the exfoliable graphite is adhered to the beads with a resin comprising an emulsion comprising a styrene homopolymer, the resin having a solubility parameter of within substantially $0.5(\text{cal cm}^{-3})^{1/2}$ of the solubility parameter of the polymeric material. *Support for the limitations can be found in at least paragraphs [0019] and [0020] of the application as published, where it is stated that the resin is an emulsion of a styrene homopolymer, in one embodiment.*

The Applicant believes that the Examiner is of the opinion that claim 1 is not novel over JP4356543 as this document discloses the use of a styrene/acrylic copolymer as a resin. Applicant submits that JP4356543, however, does not disclose or suggest the use of a styrene homopolymer resin. Applicant further submits that exfoliable graphite is not mentioned in this reference. While, JP3167237 discloses the use of an exfoliable graphite on expandable polystyrene by means of a resin selected from the group of acrylonitrile-butadiene copolymer, styrene-butadiene copolymer, EVA copolymer, polyvinylacetate resin, PVC resin or polyacrylate resin, JP3167237 does not disclose or suggest the use of a styrene homopolymer based resin.

The Applicant has discovered that an advantage of using a styrene homopolymer resin together with a polystyrene base material is that an excellent adherence is obtained between the polymer beads and the exfoliable graphite by means of the resin, and that this adherence enhances the physical properties of the final product detailed in paragraphs [0033]-[0037] of the application as published.

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Since neither JP4356543 or JP3167237 disclose or suggest the use of the styrene homopolymer, Applicant submits that amended base claims 1 and 10 are both novel and inventive over these references. Accordingly, Applicant submits that the rejections of claims 1, 2 and 9-12 over JP4356543, and JP4356543 in view of JP3167237, have been overcome through amendment, and respectfully requests the Examiner to withdraw the rejections.

Applicant further submits that the rejection of claims 3-8 under 35 U.S.C. 103(a) have been overcome based upon their dependency from amended claim 1 and the reasons stated above.

Conclusion

In view of the foregoing amendments and remarks, it is submitted that the pending claims are now in condition for allowance. Reconsideration of the rejections and reexamination are requested.

This response is being submitted with a petition for a three-month extension of time and does not contain more claims than previously paid for. If there are any other fees due in connection with this response, the Director is authorized to charge such fees or any underpayments to Deposit Account No. 01-0265. Any overpayments should likewise be credited to Deposit Account No. 01-0265.

Respectfully submitted,

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